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The metal was 99 per cent. pure, containing varying quantities of iron and silicon. A boiler of 732 sq. cm. surface lost in three years' daily use 0.1046 gram, a daily loss of 0.09 milligrams. Another boiler of the same size in which milk was boiled twice a day for fifteen minutes lost in three years 0.5138 gram. An impervious coating seemed to be formed on the metal which protected it from further action. This was shown by experiments with sheet aluminum, which was boiled daily three hours with water, and which suffered greater loss near the beginning of the experiment than at its close. Forks and spoons lost very little by constant use at meals, and the same was true when used for salads, and also when used in cooking. After three years' constant use coffee spoons showed a loss of from 0.032 to 0.036 grams and tea spoons from 0.0206 to 0.0244 grams. These experiments would tend to show that for ordinary table purposes aluminum is a safe metal to use, and that it is also safe for vessels for boiling water. A similar series of experiments where salted foods and vegetables were cooked in aluminum vessels would be interesting and valuable.

In the *Zeitung für Beleuchtungswesen* Paul Wolff discusses the question of acetylene generators. Most generators depend upon the removal of the water from the calcium carbide by the pressure of the gas to stop the action of the generator. The author shows that this is not sufficient. There are three causes for the action of the water on the carbide not ceasing. 1. The gas in the carbide chamber is saturated with water vapor, and the water is continually evaporating into this chamber. 2. A part of the water is taken up by the warmed lime and given off on cooling. 3. The carbide above the water is continually absorbing water. These difficulties may be obviated to some extent by providing that the water chamber be separated as completely as possible from

the carbide chamber, as in a Kipp apparatus, but even then the action will go on until all the water present, as vapor in chamber and absorbed by the lime, has been exhausted. It is thus imperative to provide a gas reservoir large enough to contain all the gas which may, under these circumstances, be evolved after the gas has been turned off. The author in the article discusses the necessary size of this reservoir for different generators.

J. L. H.

SCIENTIFIC NOTES AND NEWS.

THE will of the late Dr. George H. Horn gives his valuable entomological collections, together with his entomological books and instruments and an endowment of \$200 per annum, to the American Entomological Society. From the residuary estate, after the death of his sister, the Entomological Society is to receive \$5,000, the Philadelphia Academy of Natural Sciences \$1,000 and the American Philosophical Society \$500.

LATE advices from the Pribilof Islands state that many yearling fur seals branded as pups in 1896 made their appearance on the hauling grounds in September and October; also that over 5,000 pups and 180 adult females were branded this year. Apart from the practical bearing of this work it will furnish definite evidence of the movements of the seals and show to what extent the females resort to the rookeries on which they were born or on which they first appeared as two-year-olds.

MR. CHARLES WALLACE HUNT, New York, has been elected President of the American Society of Mechanical Engineers.

PROFESSOR JACOB REIGHARD, of the zoological department of the University of Michigan, has been appointed by Governor Pingree a State delegate to the National Fishery Congress to be held at Tampa, Fla., January 19, 1898.

FURTHER jubilee medals have been conferred upon Dr. Günther, President of the Linnean Society; on Professor Dewar, President of the Chemical Society, and on Professor R. Meldola, late President of the Entomological Society.

PROFESSORS O. HERTWIG, F. E. Schultz, Berlin, and A. Fick, Wurzburg, have been elected corresponding members of the Munich Academy of Sciences.

WE learn from *Nature* that Professor A. Bauer has been obliged, on account of ill-health, to decline the office of President of the third International Congress for Applied Chemistry, which is to be held next year at Vienna, and Dr. H. R. von Perger has been elected in his stead. There will be twelve sections in connection with the Congress. Among the subjects to be discussed is the introduction of uniform methods of analysis of chemical products.

ALONZO S. KIMBALL, since 1872 professor of physics at Worcester Polytechnic Institute, died at Worcester on December 2d, aged fifty-four years.

THE death is announced of Dr. Louis Calori, elected as long ago as 1830 professor of anatomy in the University of Bologna. He made important contributions to human and comparative anatomy, including extensive researches on the Reptilia.

DR. M. FORSTER HEDDLE, best known of British mineralogists, died at St. Andrews on November 19th, aged sixty-nine years.

WE also regret to record the deaths of Dr. Wilhelm Blomstrand, professor of chemistry in the University at Lund; Dr. Nikolaus Kleinenberg, professor of comparative anatomy at the University of Palermo; Dr. Wilhelm Moericke, docent in geology in the University of Freiburg.

MR. J. G. SUDBOROUGH, University College, Nottingham, writes to *Nature* calling a meeting of the British students of the late Victor Meyer, in order to raise a memorial to him, to be erected in the Heidelberg lecture theater. His former students in America would doubtless be glad to join in such a memorial.

THE American Institute of Homeopathy has been successful in collecting funds for a monument to Hahnemann. It is said that as much as \$75,000 has been collected and that the bronze statue by Mr. C. H. Niehaus will be dedicated during the spring at Washington.

THE New York Board of Estimate and Apportionment adopted unanimously the plan for

the New York Public Library prepared by Carrère & Hastings.

By the will of the late Warren G. Roby, of Wayland, Mass., the sum of \$28,000 and half an acre of land has been left to the town of Wayland for a public library.

THE National Museum of Santiago, Chili, has purchased, at a cost of about \$7,000, the valuable collection of Peruvian antiquities made by Mr. Nicolaus Saenz.

THE centenary of the Natural History Society of Hannover will be celebrated on December 15th and the two following days.

Nature states that M. Moureaux has just completed the installation of the new magnetic department of the Parc St. Maur Observatory, and it was set in operation on December 1st. The work at the old magnetic rooms will be continued until January 1st, in order to supply M. Moureaux with a sufficient number of observations for a reduction of the valuable records obtained continuously during a number of years.

A PASTEUR INSTITUTE has been established at the University of Montpellier.

THE Romanes Lecture at Oxford University next year will be given by Sir Archibald Geikie.

DR. G. F. JACKSON opened the winter course of lectures at the Imperial Institute on November 19th, the Prince of Wales presiding, with an account of the results of the Jackson-Harmsworth Expedition, on November 22d. Mr. E. S. Bruce lectured on 'Electric-Balloon Signaling applied to Scientific Exploration in Arctic and Antarctic Expeditions.' Other lectures announced for the course are illustrated lectures on 'The Wild Kafirs of the Hindu Kush,' by Sir George Scott Robertson, and on 'The Mineral Resources of British Columbia and the Yukon,' by Mr. A. J. M'Millan, of Rossland, British Columbia, formerly British agent for the government of Manitoba, who has been specially supplied with specimens, etc., to illustrate the lecture by the government of British Columbia. Professor W. C. Roberts-Austen, C.B., F.R.S., will lecture on 'Canada's Metals,' and Mr. Boverton Redwood on 'The Petroleum Sources of the British Empire.'

ARRANGEMENTS have been made for lectures by Professor Shaler and Professor James, of Harvard University, before the Teachers' College, New York.

DR. FRANZ BOAS, of Columbia University, lectured on December 3rd at the Peabody Museum, under the auspices of the Harvard Folk-Lore Club, his subject being 'The Growth of Indian Mythologies in British America.'

SURGEON-GENERAL GEORGE M. STERNBERG addressed a recent meeting of the Pittsburg Academy of Medicine on the 'Relations of man and microbe.'

DR. SVEN HEDIN, to whose travels in Central Asia we have several times referred, gave an account of these before the Royal Geographical Society, London, on November 22d.

A LETTER from Mr. Charles M. Harris, who is now at the head of the Rothschilds expedition to the Galapagos Archipelago, has been received by his brother, Dr. W. H. Harris, of Augusta, Me. Mr. Harris sailed from New York for Panama on March 20th, where he expected to charter a schooner, but three of the party there died from yellow fever. Mr. Harris then proceeded to San Francisco, where he re-organized the party and reached the islands after a passage of forty days. He states that he has been successful in making extensive collections of the fauna and flora of the islands, and expects to return to San Francisco in the spring.

THE Washington correspondent of the New York *Tribune* states that Dr. Henry S. Pritchett assumed charge of the United States Coast and Geodetic Survey on December 1st. The dispatch continues: "It will be highly gratifying to scientific circles and the friends of this Bureau to learn that the President and Secretary Gage are determined that the Bureau shall be conducted on scientific and business principles and that their plans will be carried out. Dr. Pritchett was selected entirely on the recommendations of scientific men, regardless of political views. * * * * He is a worthy successor of Dr. T. C. Mendenhall, whose admirable administration of the Bureau from 1889 to 1894 is so well remembered."

IN addition to volumes of the Contemporary

Science Series (Mr. Walter Scott, London; imported by Messrs. Charles Scribner's Sons, New York) requiring special notice we have received two volumes—one a translation and one a new edition, to which attention may be called. Professor Ribot's '*Psychologie des sentiments*,' of which we gave a detailed review at the time of its publication, has been translated into English, thus much enlarging the audience of the acknowledged leader of French psychology. Dr. Moll's '*Hypnotism*' has been issued in a fourth edition, being apparently more in demand than any other volume of the series. We have not the third edition at hand for comparison, but the book has been much altered and enlarged since the publication of the first edition in 1889. The popular interest in hypnotism is in part morbid, and the numerous and widely circulated books, journals and articles on the subject do not usually add much to its scientific study, while they in some cases promote credulity and amateur experimenting. Dr. Moll's book, however, is sane and scientific, and it is to be hoped that some who come for a 'sensation' may go away with an increased knowledge of mental phenomena.

UNDER the title 'An Unusual Phyto-bezoar,' Professor Trelease has published, in the Transactions of the Academy of Science of St. Louis, an account of certain balls, composed of the felted barbed trichomes of *Opuntia*, obtained from the stomach of a Mexican bull, and comparable with similar formations described in 1896 by Dr. Coville as occurring in the stomach of a horse, and composed of the calyx hairs of a species of *Trifolium*.

THE fourth and revised edition of Professor Thurston's Engine and Boiler Trials has just been issued. In the front of the book the publishers print a descriptive list of nineteen of Dr. Thurston's works.

THE explosives department of the British Home Office has, as we learn from *Machinery*, recently had under consideration the question of the restrictions to be applied to the manufacture and keeping of acetylene gas, and has conducted various experiments with the object of gaining information on this matter. The results show conclusively that acetylene gas *per se*,

when under a pressure of something less than two atmospheres, is violently explosive; whereas, at a pressure of less than one and a half atmospheres, it appears to be reasonably free from liability to explosion, provided it is not admixed with oxygen or atmospheric air. For commercial and practical purposes it is considered sufficient to allow a pressure of twenty inches of water above that of the atmosphere (*i.e.*, roughly about one and one-twentieth atmospheres), and it is accordingly proposed to draw the safety line at this point, and to declare acetylene, when subject to a higher pressure, to be an 'explosive' within the meaning of the Explosive Act of 1875. In France and Germany the authorities have fixed the limit of danger at one and a-half and one and one-tenth atmospheres respectively, and have imposed prohibitions or restrictions on the keeping or the manufacture of the gas when it is at a higher pressure.

Two notable articles in the *Revue de Mécanique* for October are those of Dwelshauvers-Dery on the effect of compression of steam in the 'dead spaces' of steam engines, and Sinigaglia on the employment of superheating as a source of gain in thermodynamic and actual efficiency. The former finds by trial with the 'experimental steam engines' of the University of Liège that increasing compression results in increasing waste and decreasing efficiency, the loss of power in the engine more than counterbalancing the 'initial' condensation in the steam cylinders. The latter describes in the third of a series of papers the various types of superheating apparatus employed, and gives results of their use, the gain being sometimes 20 % and more.

At the Sydney meeting of the Australasian Association for the Advancement of Science, to be held in the second week in January, Sir James Hector, F.R.S., will give a popular lecture on 'Antarctica and the Islands of the far South,' and Professor R. Threlfall and Mr. J. Pocock will give a lecture to workmen on 'Electric Signaling without Wires.' The Sydney *Morning Herald* states that the Australasian Association originated in a letter from Professor Liversidge published in that journal in 1884.

The first meeting of the Association was held in Sydney from August 27th to September 5th of the Centennial year, 1888, under the presidency of Mr. H. C. Russell, F.R.S., when 850 members were enrolled. Meetings have also been held at Melbourne, with 1,162 members, in 1890, when the late Baron von Mueller, F.R.S., was President; at Christchurch, New Zealand, with 550 members, in 1891, President Sir James Hector, F.R.S.; at Hobart, with 600 members, in 1892, President Sir Robert G. C. Hamilton; at Adelaide, with 488 members, in 1893, President Professor Ralph Tate, F.G.S.; and at Brisbane, with 524 members, in 1895, when the Hon. A. C. Gregory was President. The governments of Victoria, Tasmania, New Zealand, South Australia and Queensland have each in turn given assistance to the extent of about £1,200, either wholly or in part, as a money grant towards the expenses of the session and publication of the annual volume.

UNIVERSITY AND EDUCATIONAL NEWS.

MR. DEAN SAGE and Mr. William D. Sage have given to Cornell University the house of the late Henry W. Sage for a University Infirmary. They also endow the institution with \$100,000 and will equip the building for a hospital, the total value of the gift being \$200,000.

THE will of the late Sir Thomas Elder, of Adelaide, South Australia, leaves large sums to charitable and public institutions of Adelaide, including the following: To the Zoological Society, £2,000; to the Geographical Society, £2,000; to Way College, £2,000; to Prince Alfred College, £4,000; to the Picture Gallery, £25,000; for a chair of music at the University, £20,000; to the Medical School of the University, £20,000, and to the University £25,000.

MR. ANDREW CARNEGIE has given \$10,000 to the endowment of the Mechanics' Institute in Richmond, Va.

THE late Sir William Mackinnon has left a legacy of £2,000 to the University of Glasgow for a scholarship, in the following subjects: (1) Geology; (2) Natural History, together with Comparative Anatomy; (3) Modern Foreign Languages; the examination in each subject to be taken in each succeeding year in rotation.